EVERGREEN COMMUNITIES ACT CRITERIA AND IMPLEMENTATION PROGRESS REPORT –

EXECUTIVE SUMMARY

INTRODUCTION TO COMMUNITY AND URBAN FORESTRY

A "community and urban forest" is that land in and around human settlements ranging from small communities to metropolitan areas, occupied or potentially occupied by trees and associated vegetation. Community and urban forest land may be planted or unplanted, used or unused, and includes public and private lands, lands along transportation and utility corridors, and forested watershed lands within populated areas.[1]

The Evergreen Communities Act (E2SHB 2844) recognizes the many contributions that community and urban forests make to local communities throughout the state, specifically their role in mitigating air and water pollution. The Act, stating that the "preservation and enhancement of city trees and community and urban forests is one of the most cost-effective ways to protect and improve water quality, air quality, human well-being, and our quality of life,"[2] was enacted to provide assistance to cities, towns, and counties in Washington that wish to improve or enhance their community and urban forests in order to reap the many social, ecological, and economic benefits provided by city trees.

PURPOSE AND OVERVIEW OF REPORT

Tree inventories catalog the tree resource. The subsequent analysis and assessment of collected data is integral to the development of management plans and creation of policies intended to care for, protect and expand the community and urban forest.

The Evergreen Communities Act directs the Department of Natural Resources to develop a criteria and implementation plan for a statewide community forest inventory and assessment. The bill schedules completion of a pilot project in two Washington Counties (one located on the east of the crest of the Cascade Mountains and one located to the west of the crest) by June 2010. The bill acknowledges that these deadlines are dependent upon the appropriation of adequate funding resources.

This document summarizes a 16 page technical report regarding the criteria and implementation plan developed with the assistance of a Technical Advisory Committee (TAC). The recommended inventory protocol in this report complements the policy and management tools being developed by the Department of Commerce, in compliance with other sections of the Evergreen Community Act.

The report also reflects TAC recommendations to: complete a ground-based state-wide community and urban forest inventory using random sampling protocol; complete a two-county pilot project using a combination of aerial photo interpretation techniques, to determine canopy cover (the range and percentage of area covered by crowns of trees), and ground inventories, to collect a specific set of tree-related data used in resource management; analyze the data to demonstrate the benefits and value of the urban forest and plan for management.

Implementation of the initial state-wide inventory and pilot project is currently unfunded.

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[1] RCW 76.15.010 (1)

[2] State of WA 60th Legislature, Engrossed second substitute house bill 2844, 2008, Section 1.1.b, p.2

IMPLEMENTATION OF THE STATE-WIDE COMMUNITY AND URBAN FOREST INVENTORY AND ASSESSMENT

The first step in assessing the State's urban forestry resource is a state-wide canopy analysis. Remote sensing (also called spatial analysis) tools, such as aerial photos or satellite images, are useful in identifying the range and percentage of tree canopy cover; because they include trees growing on public as well as private land, often well over 60% of the total community and urban forest.

Data collected through spatial analysis is useful for long-range planning and management of the community forest resource: identifying areas of existing canopy potentially impacted by growth, tracking cumulative canopy gain/loss over time, and classifying priority areas for canopy retention and tree planting.

ECONOMIC BENEFITS OF TREES

The United States Forest Service recently completed a nation-wide community and urban forest canopy analysis based on satellite data collected in 2000. The data demonstrates the value of community and urban forests in Washington, including carbon storage estimated at $515,300,000; annual carbon sequestration valued at $16,986,000; and air pollution removal valued at $156,100,000.[3]

Ground-based data collection is an integral component in assessing the community and urban forest, providing information necessary for resource analysis, planning and management, (species, age, size, condition, etc.). State-wide ground data collection should be accomplished to complete the state-wide community and urban forestry inventory and assessment. A statistically accurate sampling of data can be collected from randomly located plots, following inventory protocols developed by the United States Forest Service (USFS) and analyzed with public domain tree analysis software programs (i-Tree) also developed by the USFS.

SPATIAL ANALYSIS AND INVENTORY DATA COLLECTION PROTOCOLS IN SUPPORT OF LOCAL MANAGEMENT

To ensure information is relevant to management needs, canopy analysis for local communities should provide a level of detail not possible with public domain satellite imagery. County pilot project implementation criteria are designed to provide that level of detail to communities.

Depending on availability of resources, DNR will partner with the University of Washington Remote Sensing and Geospatial Analysis Lab to develop protocols that use existing DNR aerial photography, in combination with public domain satellite imagery, to analyze local community tree canopy.

Spatial analysis will be paired with ground-data collected from randomly placed plots within communities' urban growth area boundaries. Communities can choose to collect additional data, through complete inventories, if desired, and current tree inventory information will be used in place of random sample plots, if it is available. Analysis of data, utilizing i-Tree software, will provide an accurate assessment of the resource.

COLLECTING ACCURATE DATA

Data collection for the county-wide pilot project is expected to be accomplished in partnership with local city forestry staff, DNR foresters, (if available) and/or professional urban forestry service providers.

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[3] David Nowak, Research Forester, April 2009, *personal communication*, United States Forest Service Northern Research Station

Every community should be inventorying trees for local management purposes. A table of tree inventory data elements has been developed as a guide for communities designing tree inventories. The table standardizes data, defining common values, which will enable it to be easily shared or aggregated. The core data set includes the minimum data elements necessary for a community intending to write a basic management plan, and includes elements essential for reporting carbon credits, (based on current industry standards). The table classifies additional data sets specific to resource management variables, (street or individual tree management versus natural area management).

Data should be collected electronically, whenever possible, to assure consistency, accuracy and eliminate potential transmittal errors, and additional data entry costs. Data is more likely to be utilized as a management tool if it is managed in an electronic, tabular (spreadsheet or data base) or spatial (geographical information system (GIS) database) format. The Department of Natural Resources can support cities by developing electronic data collection forms and make them available to interested communities.

VOLUNTEERS AND DATA COLLECTION

Accurate and consistent data is crucial in order to improve management of urban forests. To assure accuracy, initial inventory data should be collected by experienced arborist staff or professional urban forestry consultants. The use of volunteers is recommended for subsequent data collection, and only with essential training.

Washington State University Extension is interested in partnering with the DNR to develop an extensive community tree inventory training program designed for experienced Master Gardeners. With highly specific arboricultural training, this could provide a valuable state-wide work force with the ability to collect initial inventory data, and assist communities that are developing urban forestry programs.

THE NEED FOR DATA CONSTANCY

In order to remain relevant, it is necessary that inventory data be updated on a regular basis. This can be accomplished by entering pertinent tree information as scheduled maintenance is performed and scheduling a rotating inventory, collecting data from 20 to 30 percent of the forest each year. Rotational updates are often easier to write into an annual budget, where periodic complete resource inventories (which should be accomplished every 5 to 7 years for data to remain relevant), are often dependent on the allocation of special project funding, and may not be prioritized as a budget item.

URBAN FORESTS, ECOSYSTEMS AND CARBON MARKETS **http://www.treebenefits.com/calculator/index.cfm**[4]

The California Climate Action Registry establishes protocols for management of community and urban trees counted as carbon offsets and is considered the current industry standard. The standards are lofty and include the requirement that community and urban forestry programs demonstrate sustainability over a given period of time.

One measure of sustainability, which arguably has the greatest impact on program management, is that a community may have “no net loss” of trees in any given year, before establishing projects intended to offset

[4] National Tree Benefit Calculator by Davey Tree Expert Co. and Davey Tree with Pacific Southwest Research Station

carbon emissions and be counted in the Registry. Trees managed and counted as carbon offsets must be additional to those previously established as part of the regular community forest planting, care and maintenance program. Carbon projects must be funded with dollars additional to those budgeted for the general community forestry program. General program funding cannot be diverted to care for those trees planted for the specific purpose of being counted within a carbon project. The high level of accountability requires communities to have functional tracking systems in place.

In order to position themselves to explore the feasibility of managing trees for consideration as carbon offsets, a community must:

- implement a tree inventory and assessment to develop a baseline of data for the existing community forest within potential program boundaries
- develop a tracking tool to document ongoing resource management activities
- meet Evergreen Communities standards as proposed by the department of Community Trade and Economic Development (CTED) Evergreen Communities Partnership Task Force
- achieve the standard of "no net loss" of trees within program boundaries (an indication of sustainable urban forestry programming)

It is important to understand that, while communities explore the feasibility of carbon markets by designing sustainable programs, urban forests continue to function to moderate carbon indirectly; reducing energy consumption, through shade and acting as wind blocks and, at the end of a long, productive life, producing energy to offset use of other fuel sources.

PRIORITIZATION & IMPLEMENTATION

Ground inventory data should be collected, to complete the state-wide community and urban forest inventory initiated with the USFS community and urban forest canopy spatial analysis project.

The USFS has agreed to complete a canopy change analysis in two Washington communities, Tacoma and Spokane. Pierce County and Spokane County will serve as pilots for a county-wide local community high-resolution spatial analysis, complemented with ground inventory data and data analysis.

Spatial analysis will be accomplished in partnership with the University of Washington Remote Sensing and Geospatial Analysis Lab. Communities wishing to participate in the project will collect ground data using DNR established protocols. Data will be analyzed utilizing USFS i-Tree Suite software to describe the function, structure and value of the resource.

THE ROLE OF DNR COMMUNITY AND URBAN FORESTRY PROGRAM

As part of **continued programming**, DNR Community and urban Forestry staff will:

- Provide technical assistance to communities interested in performing local tree inventory and assessment projects.
- Partner with smaller communities through cost-sharing/grant funding to perform inventories and assessments.
- Seek additional funding to continue to implement the Evergreen Communities Act and the inventory project.

Contingent on available funding for implementation of the Evergreen Communities state-wide community and urban forest inventory and assessment project, DNR Community and urban Forestry will:

- Support completion of the state-wide community and urban inventory and assessment by establishing statewide random sample inventory plots; coordinate collection and analysis of ground data. (Spatial analysis was completed by the USFS)
    - Provide training for inventory collectors, (DNR staff, local jurisdictions, Master Gardeners).
    - Provide staff, as resources allow, for state-wide inventory and assessment data collection.
    - Analyze state-wide ground data utilizing i-Tree tools.
- Partner with University of Washington to develop protocols for high resolution spatial analysis to assess and analyze canopy cover in individual jurisdictions
- Develop standard electronic data collection form(s) compatible with spatial and tabular applications, and make the forms available to communities participating in inventory projects.
- Develop model templates for requesting service quotes from consulting arborists and for purchasing commercial tree inventory software; to ensure consistent state-wide data standards